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Announcing cIMPACT-NOW: The Consortium to Inform Molecular and Practical Approaches to CNS Tumor Taxonomy

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The recent publication of the 2016 World Health Organization Classification of Tumors of the Central Nervous System (2016 CNS WHO) represents a significant advance in the classification of human brain tumors [4]. For the first time, a CNS WHO classification defines diagnostic entities by combining molecular and histological information. In doing so, the classification facilitates more precise diagnosis of well-understood entities and clearer designation of less-understood entities, which will in turn allow further study and likely future advances in their classifications.

Such updates have broad implications in a variety of settings: the care of individual patients; the conduct and interpretation of clinical trials; the analysis of basic scientific experiments; the elucidation of population-based disease trends that may implicate specific etiologies; and the allocation of resources by governments and health insurers to support health care [5]. As a result, the 2016 CNS WHO attempted to be responsive to the needs of a wide variety of constituencies that depend on formal classifications for their work: clinicians in various neuro-oncological disciplines, scientists involved in translational and basic research on brain tumors, epidemiologists tracking disease patterns and searching for etiological clues, and those public and private agencies who fund healthcare for populations that have brain tumor patients.

To balance these needs, WHO classifications are updated periodically, with the intervals between updates varying according to many factors, including the allocation of funds to support each new edition series of classifications. However, the different constituencies may have different preferences for the frequency of updates. For example, for those in research, demands for revisions are common and rapid updates appreciated; for those tracking disease trends, on the other hand, continuity of classification systems is essential, and too frequent updates are disadvantageous; and for those managing patients, the desire is a happy medium between updating too often versus not often enough. As in the Goldilocks story, one needs to try multiple options to find a right fit—but the final fit may not be perfect for all.

Finding the right fit for how often CNS WHO classifications should be updated has been made more difficult over the past two decades, since there has clearly been an acceleration in our understanding of the molecular characteristics of human brain tumors and in our appreciation for the clinicopathological correlates of these molecular changes [1-3, 7]. Indeed, this accelerated understanding drove the decision for a earlier, 4th edition update of the CNS WHO rather than waiting longer for a 5th edition [6]. But there is still concern that the pace of change in the field creates a need to evaluate classification progress faster than is possible through standard WHO updates.

In response to this concern, we announce an initiative to evaluate and recommend proposed changes to future CNS tumor classifications: cIMPACT-NOW, the Consortium to Inform Molecular and Practical Approaches to CNS Tumor Taxonomy.

The goal of cIMPACT-NOW is to facilitate input and consensus review of novel diagnostically relevant data and determine how such information can be practically incorporated into future CNS tumor classifications. While it is understood that the major impact on international brain tumor classification comes about through the WHO classification update process, it is anticipated that this additional process will "see impact" in selected tumor types and in time periods between the WHO classification updates. Thus, the cIMPACT-NOW updates are not intended to supplant the existing WHO classification, nor are they in any way part of the official WHO process; rather, the cIMPACT-NOW updates are intended to provide possible guidelines for practicing diagnosticians and information and to provide possible guideposts for future WHO classification updates.

cIMPACT-NOW initially involves neuropathologists who played leading roles in the 2016 CNS WHO classification as well as a representative Clinical Advisory Panel, which will also suggest ad hoc clinical consultants for each major review topic and will review recommendations. In addition, the group plans to cycle its membership, primarily by bringing along new junior members. It is anticipated that cIMPACT-NOW will solicit, circulate and evaluate suggestions for topics in at least yearly intervals and that guidelines on these topics will also be issued about once a year. Generation of these guidelines will be accomplished through a process that involves dynamic working groups, each tackling a specific topic judged to be ready for evaluation. Significantly, cIMPACT-NOW is sponsored by the International Society of Neuropathology (ISN), reflecting the central role played by neuropathologists in classifications and the substantial effect that new classifications play in the daily activities of neuropathologists. It is expected that the group will promptly publish its recommendations; after appropriate review, each guideline publication will be in *Acta Neuropathologica* with an accompanying commentary focusing on the neuropathological implementation of the recommendations, in *Brain Pathology*, the official ISN journal.

cIMPACT-NOW, prompted by the quickening pace of change in the field, represents a change in the way the international neuro-oncology community approaches tumor classification. Like the official WHO classification process, however, it is hoped that cIMPACT-NOW will provide consensus guidelines that will improve clinical, experimental and epidemiological approaches to human brain tumors and that will eventually lead to a cure for these diseases.

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